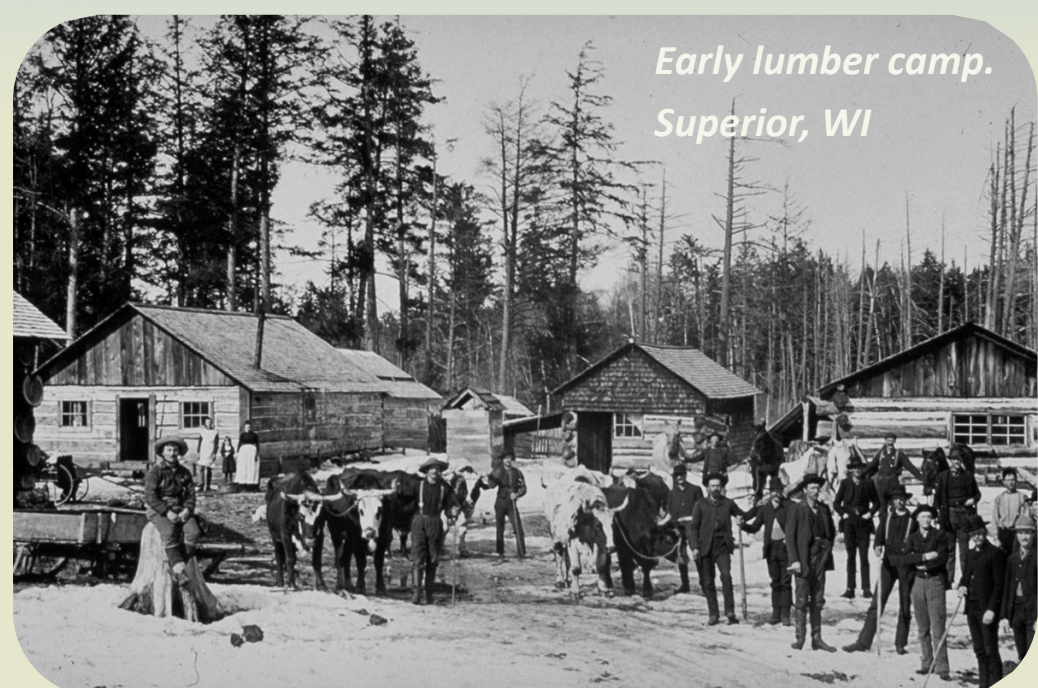
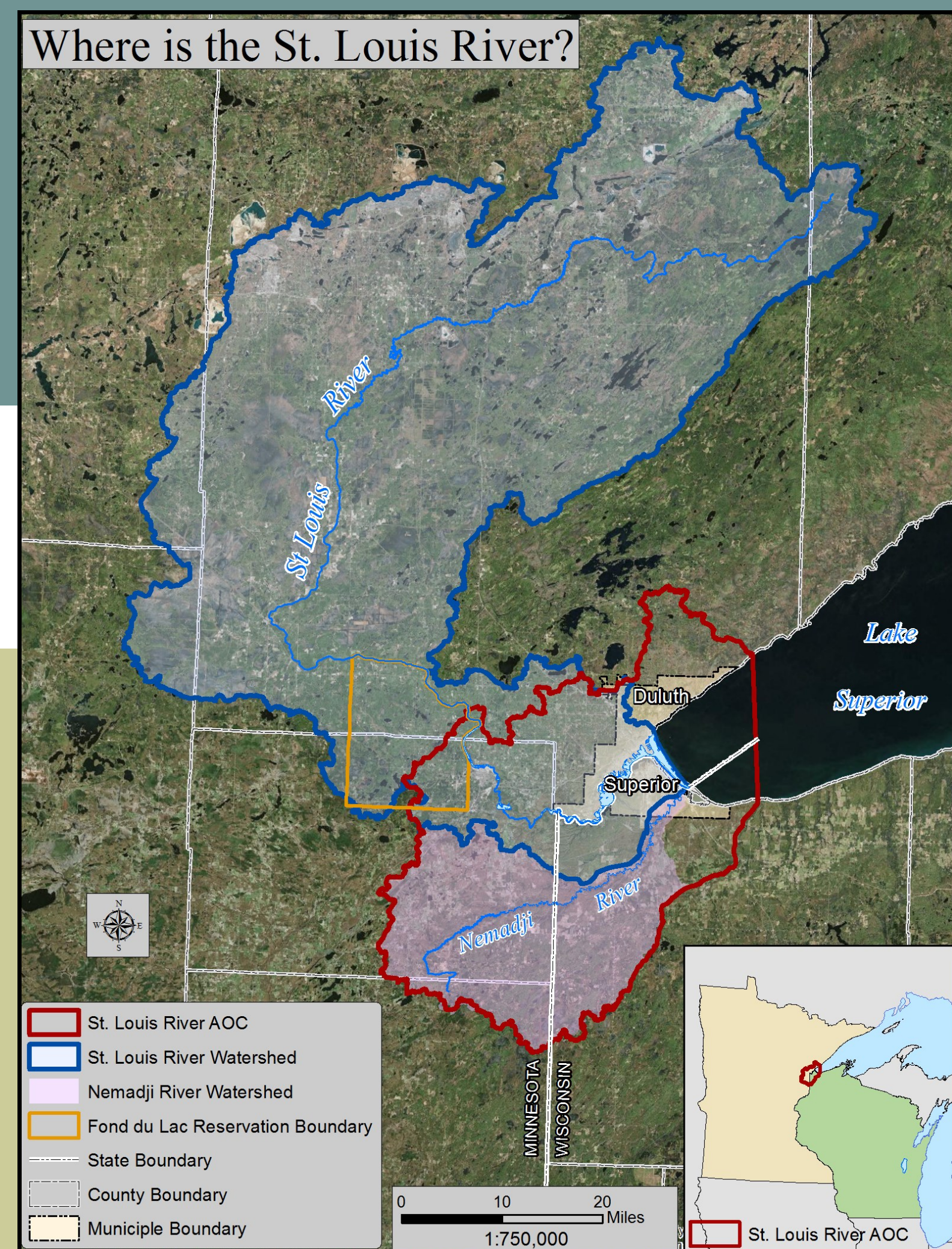


# St. Louis River

## Area of Concern

### What is an Area of Concern?

An Area of Concern (AOC) is a location in the Great Lakes that has experienced extensive environmental degradation. Historical pollution due to poor industrial practices has resulted in contaminated sediments and degraded water quality. Additionally, waterfront development in these areas has reduced the quantity and quality of fish and wildlife habitat. The St. Louis River is one of 43 Great Lakes AOCs in the U.S. and Canada.



Early lumber camp.  
Superior, WI



Kathryn Desforge

#### 1800's– Early 1900's

European explorers and French fur traders arrive at the St. Louis River's pristine waters, long after they were first paddled and fished by the Ojibwe.



Scum on the  
river, 1950's

MPCA

#### Late 1800's - Mid 1900's

Industry develops in the Duluth Superior Harbor. A lack of environmental regulations leads to discharge of sewage, toxic contaminants, grain dust, wood waste, and other industrial byproducts directly into the river.

#### 1972

The Great Lakes Water Quality Agreement is signed by the US and Canada, establishing a commitment to resolve water quality issues in the Great Lakes Basin. The Clean Water Act is passed by Congress, which establishes goals to make the nation's waters fishable and swimmable.



Superior Wastewater Treatment Plant

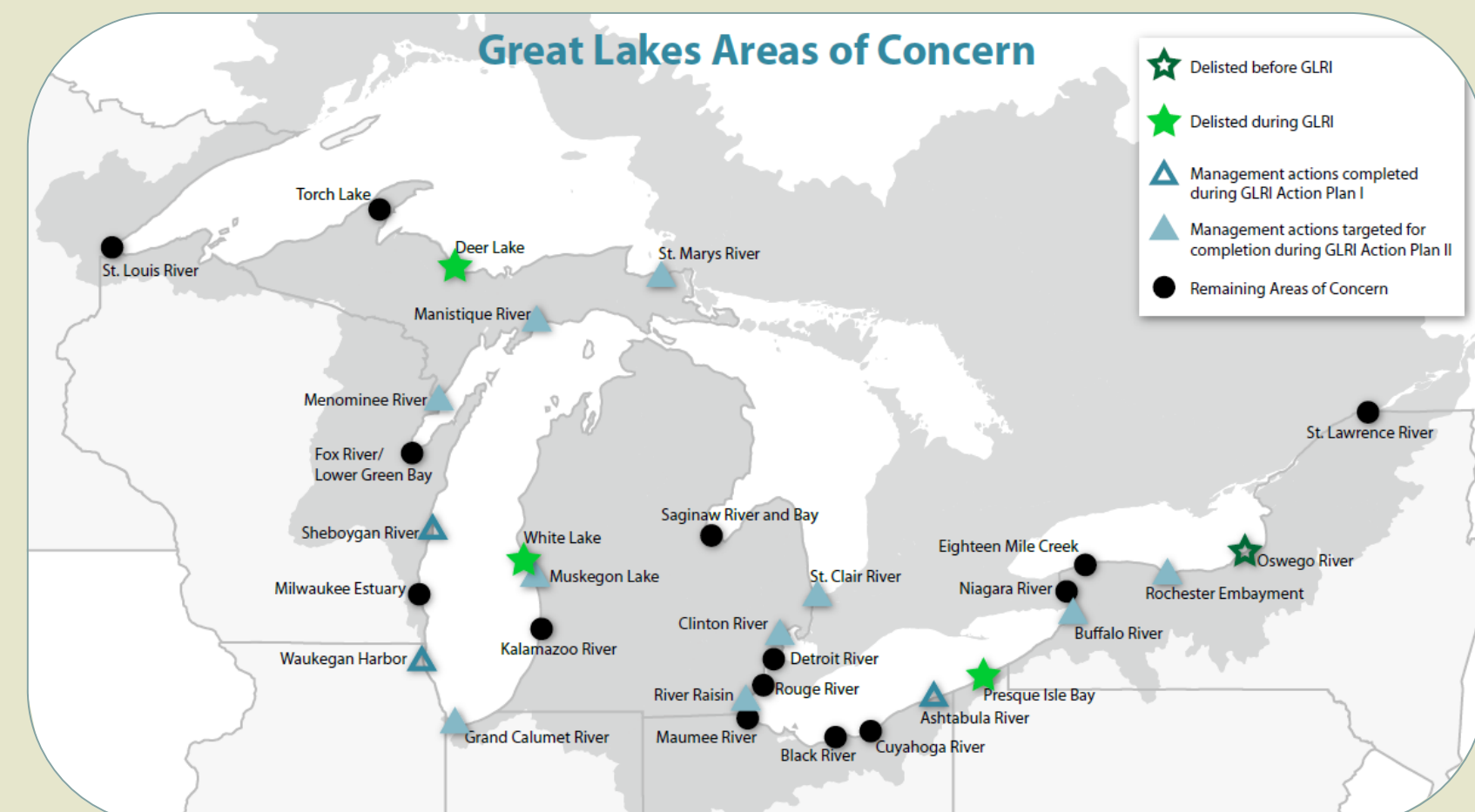
City of Superior

#### 1978

Wastewater treatment facilities are established in Superior, Wisconsin and Duluth, Minnesota.

#### 1987

Great Lakes Water Quality Agreement is amended to identify "Areas of Concern" that require special attention for cleanup and restoration.



#### 1990's

A citizen advisory group was formed to develop a plan to address problems. This group later evolved into the St. Louis River Alliance.



WDNR



#### 2010

The Great Lakes Restoration Initiative (GLRI) begins, providing significant federal funding to address impairments.

## Important Moments in St. Louis River History

# Why is the St. Louis River an Area of Concern?

Since the mid-1800’s, the St. Louis River has been re-shaped and degraded by manufacturing, logging, sawmilling, and shipping practices prior to modern environmental policies and regulations. These practices eventually led to the St. Louis River becoming one of the Great Lakes’ most polluted waterways.

*Nine specific impairments are identified:*

## Fish Consumption Advisories

Contamination has resulted in fish consumption advisories based on Polychlorinated biphenyls (PCBs) and Mercury. The next steps to remove this impairment include cleanup of contaminated sediments and monitoring fish tissue for contaminants. The AOC goal is for consumption advisories for the St. Louis River to be no more conservative than the larger region.

## Degraded Fish and Wildlife Populations

Contamination, poor water quality, and loss of critical habitat have resulted in reduced abundances of fish and wildlife. The next steps to remove this impairment include monitoring bird and fish populations, completing a survey for semi-aquatic mammals, and restoring habitat for piping plover. The AOC goal is for monitoring to show that fish and wildlife populations are not limited by physical habitat, food sources, water quality, or contaminated sediments.

## Fish Tumors and Deformities

Contamination may have resulted in increased rates of fish tumors and deformities. The next steps to remove this impairment include cleaning up contaminated sediments and monitoring fish tumor and deformity rates. The AOC goal is to have fish tumor and deformity rates which are not elevated compared to fish tumor rates in the larger region.

## Degraded Sediment-Dwelling Organisms

Alteration and contamination of bottom sediments has resulted in degraded communities of benthic (sediment-dwelling) organisms. The next steps to remove this impairment include cleaning up contaminated sediments and restoring aquatic habitat. The AOC goal is for communities of benthic organisms within restored sites to be approximately the same as in comparable un-impacted sites.

## Restrictions on Dredging Activities

Contamination has resulted in special handling requirements of dredge materials that may contain toxic pollutants. The next steps to remove this impairment include testing sediment for contamination throughout the AOC, cleaning up contaminated hotspots, and developing a bi-state approach to inform partners and public about restrictions on dredging. The AOC goal is to understand and communicate the extent of contamination and for contamination hotspots to be cleaned up.

## Excessive Sediments and Nutrients

Lack of appropriate sewage treatment prior to the 1980’s resulted in elevated nutrients in the river. Extensive logging and removal of shoreline vegetation resulted in increased erosion in the Nemadji River and increased sediment in the St. Louis River. The next steps to remove this impairment include monitoring water quality improvements since upgrades to wastewater treatment facilities and assessing the sources and impacts of sediment in the Nemadji River. The AOC goal is for nutrient and sediment monitoring data to show that water quality does not restrict habitat or recreation.

## Beach Closings and Body Contact Restrictions

Bacteria and toxic pollution in the river has resulted in the closure of beaches and body contact advisories. The next steps to remove this impairment include cleaning up contaminated sediments, identifying the source of bacterial contaminants, and addressing the source if it is due to human activities. The AOC goal is to remove no-swimming signs at contaminated areas and address beach closures due to wastewater pollution.

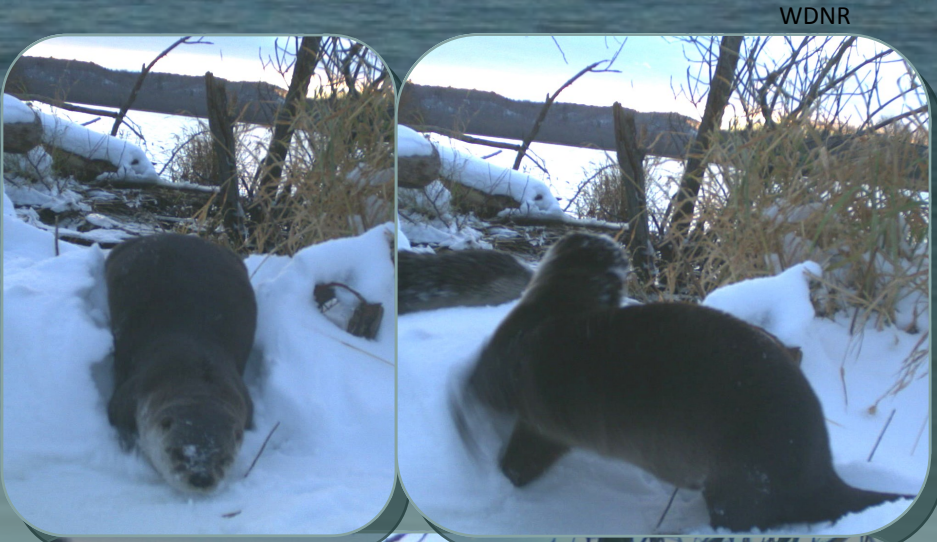
## Degradation of Aesthetics

*Goal Met!  
Impairment Removed!*

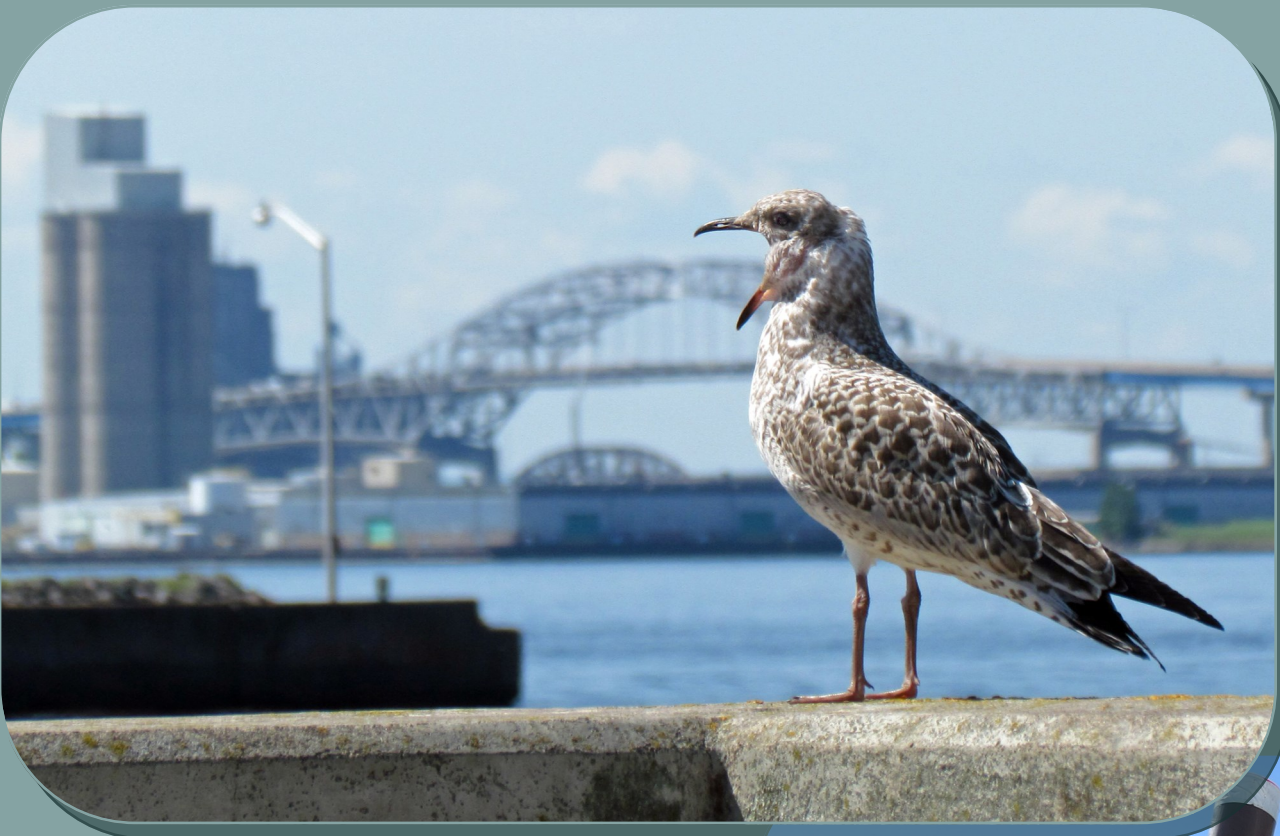
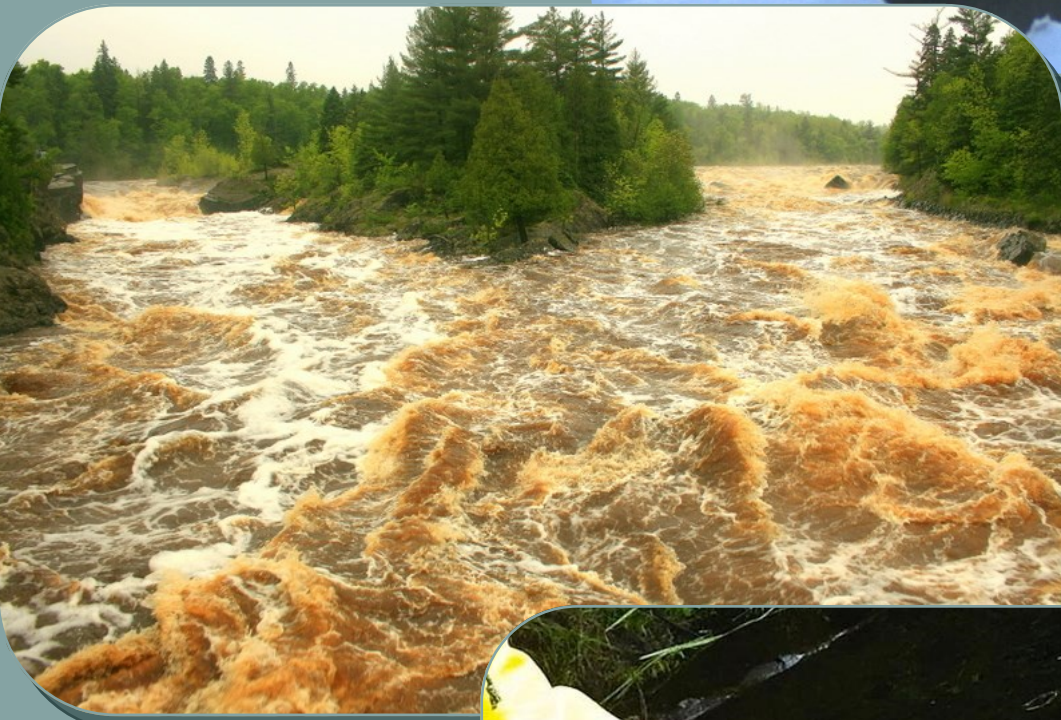
A history of unregulated pollution in the industrial port caused the aesthetics qualities of the river to be degraded. The Clean Water Act and other environmental regulatory programs resulted in improvements in aesthetics and the removal of this impairment. The AOC goal of no persistent occurrences of oils, films, chemical residues, scums, discoloration, or obnoxious odors in the river has been met.

## Loss of Fish and Wildlife Habitat

Development and contamination has reduced the quantity and quality of habitat in the AOC. The next steps to remove the impairment include restoring aquatic, wetland, dune, tributary, and upland habitat and addressing invasive species. The AOC goal is to restore 1,700 acres of aquatic habitat, clean up contamination, and restore and protect additional shoreline and upland habitat.



From top: Trail cameras document small mammals such as these mink; Storm events which cause erosion and sewer overflows contribute to excess sediments and nutrients; Juvenile lake sturgeon naturally reproduced in the estuary is a sign of fish population improvement.



From top: Industrialization has led to habitat loss; Sediments in Howard’s Bay are sampled for hazardous chemicals; Benthic invertebrates are assessed for population health.

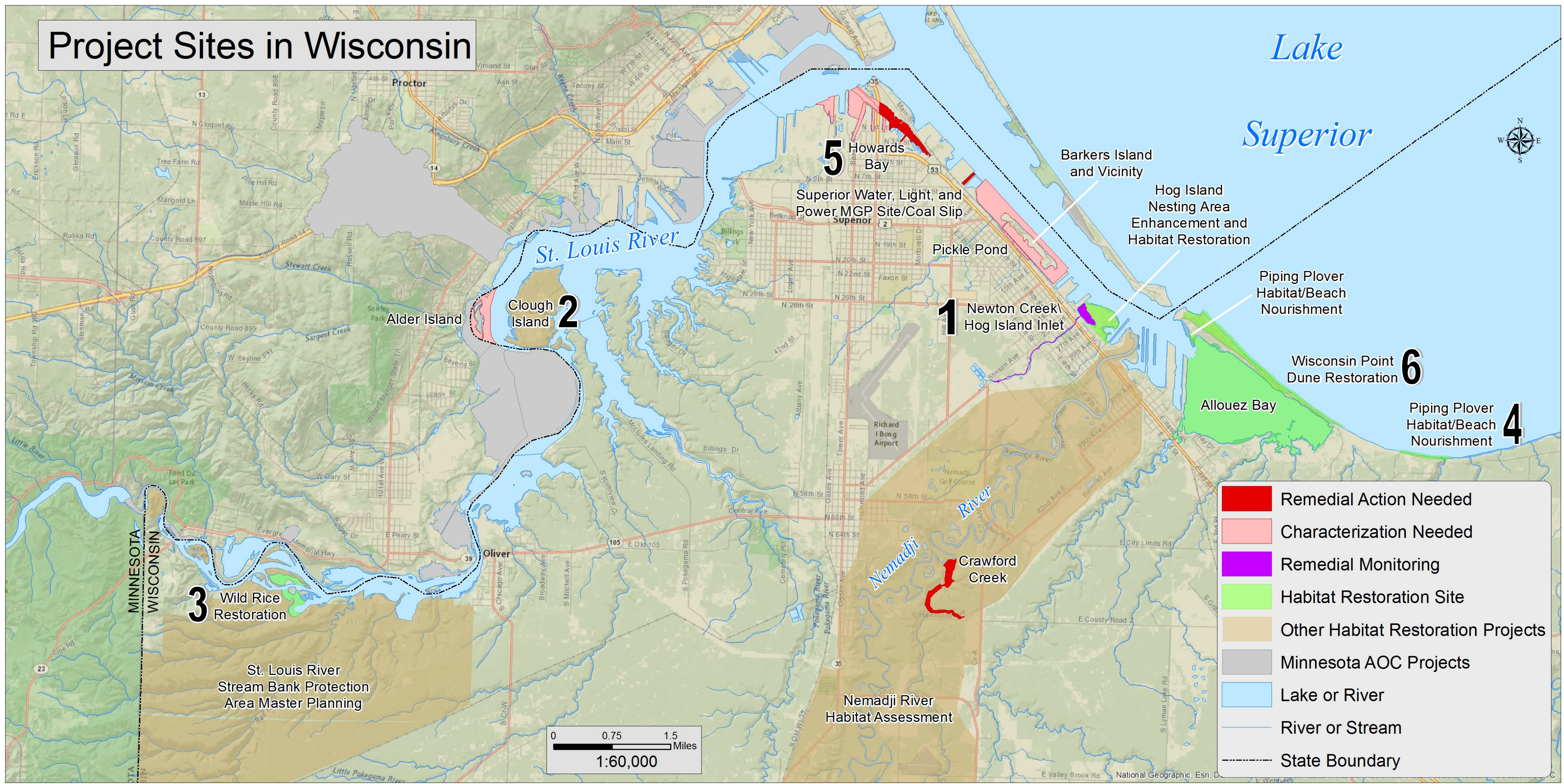


## Celebrating Success!

In August of 2014, the St. Louis River AOC reached a major milestone when the Degradation of Aesthetics impairment was officially removed. The other impairments will be removed over the next 10 years. The intent of AOC partners is to remove the St. Louis River from the list of Great Lakes AOCs by 2025.

# What’s happening in the AOC? Wisconsin Project Highlights

Today, the St. Louis River continues to be an important resource for commerce and industry as well as a place for recreation and public enjoyment. The Wisconsin DNR has been working with Minnesota and our local and federal partners for more than 20 years to address pollution and habitat loss in this area.



## 1 Newton Creek and Hog Island Inlet

Since the early 1920's, the Newton Creek and Hog Island Inlet area was used to dispose of dredge spoils and industrial petroleum byproducts. Soils were contaminated with petroleum compounds and lead. From 1997 – 2005, over 67,920 tons of contaminated sediment was removed. Following sediment remediation, Douglas County and the University of Wisconsin Superior Lake Superior Research Institute (LSRI) partnered to implement habitat restoration. Invasive species were removed and native trees, shrubs, grasses, wildflowers, and wetland species were planted in and around Hog Island Inlet, Newton Creek, and Allouez Bay. Large woody crib structures were also built to provide fish and wildlife habitat. Waterfowl, turtles, and muskrat have been spotted using the logs as resting spots, while fish use the cribs for nursery habitat.



Frank Koshore

## 4 Piping Plover

Piping Plover are a shorebird species that are listed as state and federally endangered. In the early 20th century, the St. Louis River supported at least 12 breeding pairs, but as of 2014 no pairs were found in the St. Louis River. Piping plover have specific habitat requirements for nesting: wide, barren beaches. Biologists consider Shafer Beach, located just east of Wisconsin Point along the shoreline, to be the most suitable habitat for piping plover in the St. Louis River estuary area. Efforts are underway by AOC partners to attract plover to breed in this area. Restoration activities at this site include eradicating invasive species, re-sloping the beaches, and clearing driftwood and debris. A beach nourishment project is being evaluated to widen the beach and make the existing habitat at Shafer Beach more appealing to nesting piping plovers.



Summer Matteson

## 2 Clough Island

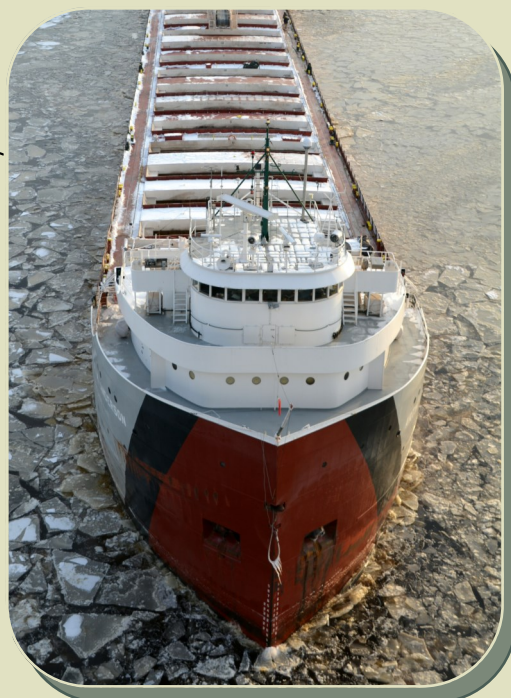
At 346-acres, Clough Island is the largest island in the St. Louis River. Bordered by steep clay bluffs, it contains a patchwork of extensive marshes, sedge meadows, wetlands, and boreal forest. The natural communities on the island were highly impacted by historic logging and farming and invasive buckthorn and honeysuckle are also present. The island was purchased from developers in 2010 by the Nature Conservancy, who later transferred the property to WDNR for management as part of the St. Louis and Red River Streambank Protection Area. WDNR has been conducting habitat restoration by planting conifer seedlings and removing invasive plant species. By the fall of 2015, approximately 10,000 seedlings will be planted and 186 acres will have been treated for buckthorn and honeysuckle.



WDNR

## 5 Howards Bay

Howards Bay is an industrial embayment which is an important shipyard for Lake Superior commerce. A history of industrial use has polluted sediments in the bay. Dredging is needed to remove contamination and to provide a deep enough channel for vessels entering the shipyard. To reduce costs, the Wisconsin DNR, EPA, and Fraser Shipyards, Inc. are collaborating in order to address environmental problems and meet maritime needs with a single project. The US Army Corps of Engineers and City of Superior are also participating in project design and planning. Once cleaned up, the bay can continue to serve as home to Fraser Shipyards while providing important habitat for fish like musky and northern pike as well as migratory waterfowl.



Terry White

## 3 Wild Rice Restoration

Wild rice is a resource that was once abundant in the St. Louis River, but has been reduced to few remnant stands over the past 50 years. In 2014, a Wild Rice Restoration Implementation Plan was completed for the AOC. Restoration work includes seeding, vegetation management, and protection against predation by Canada geese and common carp. In Wisconsin, Douglas County and other AOC partners are seeding a total of 30 acres in Allouez Bay. Approximately 160 acres is also being planted in the upper St. Louis River estuary through a partnership with Minnesota Department of Natural Resources, Minnesota Land Trust, and WDNR. Seeds purchased from the Fond du Lac Band will be used to plant five sites in back bays in the upper estuary.



Frank Koshore

## 6 Wisconsin Point Dunes

In the past years, extensive human use has taken a toll on the sensitive dune and forest ecosystems on Wisconsin Point. The degradation of the dunes, introduction of invasive species, and presence of sensitive historical sites highlight the need for appropriate infrastructure to reduce human impacts on the Point. The National Oceanic and Atmospheric Administration has partnered with the City of Superior and the state of Wisconsin to pursue a dune restoration project on Wisconsin Point. The project includes development of appropriate infrastructure to allow public access and protect the sensitive dunes as well as the historical sites on the Point. Boardwalks will be installed for beach access across the sensitive dune ecosystem and invasive species will be treated and removed. Plans include stabilizing the shoreline along Allouez Bay and reconstructing the parking lots using low impact development techniques.



Pamela Bloy



Frank Koshore